
PROJECT STUDY PLAN FOR THE WICHITA RIVER BASIN PROJECT REEVALUATION

SECTION 1 - OVERVIEW

INTRODUCTION

The Tulsa District was directed by the Assistant Secretary of the Army (Civil Works) to reevaluate the Wichita River Basin features of the authorized Red River Chloride Control Project (RRCCP). Although the Wichita River Basin is only one component of the larger RRCCP, it remains a complex project. In accordance with Engineer Circular 1105-2-208, this plan of study was developed to ensure that the study scope, schedule, costs, and important study parameters are clearly established prior to initiation of the reevaluation phase of this project.

AUTHORIZING LAWS

The Chief of Engineers recommended construction efforts as described in Part I of the Arkansas-Red River Basin Water Quality Control Study for Areas VII, VIII, and X, Wichita River, Red River Basin, in Senate Document No. 110, 89th Congress, 2nd session. The Flood Control Act of 1966 (Public Law 89-789 dated November 7, 1966) incorporated Senate Document No. 110 by reference and authorized Part I. The Flood Control Act of 1970 (Public Law 91-611 dated December 31, 1970) amended the 1966 Act and authorized Part II of the study for Areas VI, IX, XIII, XIV, and XV in the Red River Basin, and Areas I through IV in the Arkansas River Basin. Part II of the study was recommended by the Chief of Engineers in his report dated May 6, 1970. Other significant authorizing legislation is contained in:

- a. Section 74, Water Resources Development Act of 1974, Public Law 93-251, dated March 7, 1974.
- b. Section 153, Water Resources Development Act of 1976, Public Law 94-587, dated October 11, 1976.
- c. Section 1107, Water Resources Development Act of 1986, Public Law 99-662, dated November 17, 1986, General Design Phase I Plan Formulation, Volumes I and II (Design Memorandum 25, dated November 1980). This law amended the above authorization to separate the overall project into the Arkansas River Basin and the Red River Basin and authorized the Red River Basin for construction subject to a favorable report by a review panel on the performance of Area VIII in the Wichita River Basin.

PRIOR STUDIES AND REPORTS

Studies to control the natural salt pollution in the Arkansas and Red River Basins began in 1957 when Congress directed the U.S. Public Health Service to locate the major sources of natural salt pollution in those basins.

In the Red River Basin (Upper Red River and Wichita River), ten major sources were located and were identified as Areas V, VI, VII, VIII, IX, X, XI, XIII, XIV, and XV (Figure 1). In 1959, Congress directed the Corps of Engineers to determine if the salt sources could be controlled and, if so, to determine the costs and benefits of alternative control plans. Experimental work at Estelline Springs, Area V in the Upper Red River Basin, was authorized in 1962, and an effective control plan was completed 2 years later.

A survey report was completed in 1956 that recommended chloride control plans at the salt sources on the Wichita River portion (Part I) which includes Areas VII, VIII, and X. Part I was authorized by Congress in 1966, and preconstruction planning was initiated in 1968. The remaining areas in the Upper Red River Basin (Part II) were the subject of a second survey report completed in 1966 which recommended chloride control plans at five of the remaining six salt source areas. Area XI was not recommended for further studies.

Part II, including experimental work at Jonah Creek (Area XIII), was authorized for construction in 1970. Detailed studies for the three areas in the Wichita River Basin were completed in 1972. In 1974, the Water Resources Development Act provided special authorization to construct control measures at Area VIII on the Wichita River. Construction at Area VIII began in 1977.

In 1976, detailed studies of the Red River were completed with the submittal of Design Memorandum (DM) 25 that recommended control measures for the Wichita and Upper Red River areas. Area XV and the North Pease River portion of Area IX were not considered economically feasible at this time by DM 25 but were recommended for future development.

In 1978, the Corps of Engineers requested an economic reanalysis of the entire Red River Chloride Control plan to include a significantly more detailed benefit analysis. On September 12, 1991, the Office of the Assistant Secretary of the Army (Civil Works) directed the Corps of Engineers to prepare a current economic analysis of the authorized plan of the Red River Chloride Project prior to construction of any other areas outside Area X. In response, a Limited Reevaluation Report was completed June 1993. The Limited Reevaluation Report focused on an economic evaluation that defined a sequence of construction of the various project elements. Particular attention was given to with- and without-project conditions.

By memorandum dated September 20, 1996, the Assistant Secretary of the Army (Civil Works) directed the Corps of Engineers to prepare a Supplemental Assessment Report to identify and explore, in a preliminary fashion, the feasibility of desalinization, mixing/blend, and partnership options for consideration. In addition, the Supplemental Assessment Report would discuss implementability considerations, preliminary costs, and whether the options, alone or in

combination, might constitute a workable, more environmentally sensitive solution to long-term water needs. The Supplemental Assessment Report was completed February 1997.

On September 9, 1997, the Office of the Assistant Secretary of the Army (Civil Works) directed the Corps of Engineers to prepare an informal economic analysis of completing the Wichita River Basin features of the authorized RRCCP. It was proposed that proceeding with completion of Wichita River Basin construction, in lieu of the total authorized project, would address recent geographic shifts in water demand, avoid environmentally-sensitive areas along the Red and Pease rivers, and avoid impacts to fish and wildlife species and habitat. Further, the evaluation would identify if opportunities to build upon previous RRCCP investments are justified economically. The informal economic analysis was developed in about 2 weeks using existing information. The analysis was completed October 10, 1997. Agricultural benefits for the Wichita River Basin were updated and the sensitivity of the economic justification to updated information addressed variations among demand forecasts from the Red River Valley Authority of Texas, the Texas Department of Water Resources, and those used in the evaluation. The economic analysis was presented in an October 1997 report to higher headquarters, entitled Red River Basin Chloride Control Project, Evaluation of Wichita River Basin Completion. The findings indicated that there was a good possibility that completion of the Wichita River Basin features were economically feasible. A thorough reevaluation of the Wichita River Basin features was warranted.

PROJECT PURPOSE AND SCOPE

The Wichita River Basin Project consists of features in and associated with chloride control in the Wichita River Basin, a tributary of the Red River, located southeast of the Texas panhandle, in Texas. The study area includes north central and northeastern Texas, including the Dallas-Fort Worth region and the region along the Red River as far downstream as Shreveport, Louisiana. The goal of the project is to reduce naturally-occurring chloride and total dissolved solid concentrations in the Red River, including the Wichita River, to allow economical use of these waters for municipal, industrial, and agricultural purposes.

REEVALUATION STUDY PURPOSE AND SCOPE

On December 2, 1997, the Director of Civil Works, Major General Russell L. Fuhrman, approved, by letter, with concurrence from the Assistant Secretary of the Army (Civil Works), that the District could undertake the proposed reevaluation. The study is to be titled the "Wichita River Basin Project Reevaluation" and will be referred to as the WPR throughout this Project Study Plan. An electronic facsimile of the letter is shown in Appendix 1. Appendices 1.a through 1.d present the letter references which provide further guidance for development of the Wichita River Basin Project Reevaluation. Whereas the study completed October 10, 1997, was a brief analysis of the economic feasibility of completing specific, authorized Wichita River Basin features of the RRCCP, the WPR study would involve detailed formulation, economic, environmental, and cost analyses of Wichita River Basin chloride control feature modifications of those unconstructed features and other alternatives.

The purpose of the reevaluation is twofold: (1) to provide a basis to determine the most appropriate course of action for the unconstructed features of the authorized project, and (2) to reexamine the economic feasibility of chloride control alternatives and the environmental impacts of those alternatives.

REFERENCE TO STATUTES, REGULATIONS, AND GUIDANCE

This section of the PSP lists statutes, regulations, Corps guidance, and other source materials that will be referred to during the study to guide completion of study tasks. The table below provides a summary of the acronyms and subject matter of various types of guidance. This table was extracted from the U.S. Army Corps of Engineers, Institute for Water Resources, IWR Report 95-R-15, Draft Planning Manual, December 1995, which is also a useful reference document in providing practical suggestions for conducting water resource planning studies.

AR	Army Regulation
EC	Engineering Circular
EM	Engineering Manual
EP	Engineering Pamphlet
OM	Office Memorandum
PGL	Planning Guidance Letter
TL	Technical Letter
1105	Planning
1110	Engineering
1120	Construction - Operations
1130	Construction - Operations
1140	Construction - Operations
1165	Policy

The principal engineering regulation (ER) which guides the Corps of Engineers planning process is ER 1105-2-100, Guidance for Conducting Civil Works Planning Studies, 28 December 1990, U.S. Army Corps of Engineers. Appendix A of ER 1105-2-100 contains references to the applicable statutes, public laws, executive orders, and engineering regulations which guide preparation of Corps feasibility studies that had been promulgated as of the time of the ER (December 1990).

Additional references that will be utilized during the completion of work tasks include the following:

EC 1105-2-208, "Preparation and Use of Project Study Plans, 23 December 1994, U.S. Army Corps of Engineers.

EC 1165-2-203, "Technical Review Requirements," Department of the Army, U.S. Army Corps of Engineers, 15 October 1996.

EP 1110-1-8, "Construction Equipment Ownership and Operation Expense Schedule, (date), U.S. Army Corps of Engineers.

ER 5-1-11, "Program and Project Management Regulation," Department of the Army, U.S. Army Corps of Engineers, 4 March 1998.

ER 200-2-2, "Policy and Procedures for Implementing NEPA," Department of the Army, Office of the Chief of Engineers, Washington, D.C., 4 March 1988.

ER 405-1-2 (Chapter 12), Real Estate Handbook - Local Cooperation, 1 May 1998, U.S. Army Corps of Engineers.

ER 1105-2-100, "Guidance for Conducting Civil Works Planning Studies, 18 December 1990, U.S. Army Corps of Engineers.

ER 1105-2-101, "Planning - Risk Based analysis for Evaluation of Hydrology/ Hydraulics, Geotechnical Stability, and Economics in Flood Damage Reduction Studies," 1 March 1996, U.S. Army Corps of Engineers.

ER 1110-2-1150, "Engineering and Design for Civil Works Projects," Department of the Army, U.S. Army Corps of Engineers, 31 March 1994.

ER 1165-2-132, "Hazardous, Toxic, and Radioactive Waste Guidance for Civil Works Projects," Department of the Army, U.S. Army Corps of Engineers, 26 June 1992.

Planning Guidance Letter 98-05, Appendix O to ER 1105-2-100 (Revised).

PGM 95-08 (Preliminary Draft), "Alternative Review Process," Department of the Army, U.S. Army Corps of Engineers, 31 March 1994.

Acting Assistant Secretary of the Army (Civil Works), dated 13 November 1997, memorandum for Director of Civil Works, Subject: Red River Chloride Control Project, Texas and Oklahoma - Evaluation of Wichita River Basin (October 1997).

CECW-PM, Planning Guidance Letter 97-1, WRDA 96 Implementation, 19 November 1996, U.S. Army Corps of Engineers.

CECW-PE, Planning Guidance Letter 97-10, Shortening the Planning Process, 26 March 1997, U.S. Army Corps of Engineers.

CECW-AR, dated 18 October 1997, memorandum for CECW-P, subject: Red River Chloride Control Project, Texas and Oklahoma - Evaluation of Wichita River Basin Completion.

CECW-AR, dated 19 March 1997, memorandum for CECW-PC, subject: Red River Chloride Control Project, Texas and Oklahoma - Unreleased Final Supplement Environmental Impact Statement and Supplemental Assessment Report - Policy Compliance Review.

CECW-AR, dated 24 January 1997, memorandum for CECW-PC, subject: Red River Chloride Control Project, Texas and Oklahoma - Unreleased Final Supplemental Environmental Impact Statement - Preliminary Policy Compliance Review.

Economic and Environmental Principles and Guidelines for Water and Related Land Resource Implementation Studies, 1983.